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Norm1ToriHNP for GAP 4 ver.2024.04.03

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Needs: [GAP](#), version $\geq 4.8.7$; [GAP](#) package [HAP](#), version $\geq 1.11.15$;

Current version: [Norm1ToriHNP-2024.04.03.zip](#)

([SchurCoverG](#), [MinimalStemExtensions](#), [AlwaysHNPholds](#) in [HNP.gap](#) were improved;
[AllSubgroups2](#), [StemExtensions](#) in [HNP](#) were added;

[IsInvertible](#), [SearchPRowBlocks](#), [SearchP1](#), [SearchPFilterRowBlocks](#),
[SearchPFilterRowBlocksRandomMT](#), [SearchPMergeRowBlock](#), [SearchPLinear](#),
[SearchPBilinear](#), [SearchPQuadratic](#), [Hcandidates](#), [Norm1TorusJTransitiveGroup](#),
[Norm1TorusJPermutationGroup](#), [Norm1TorusJCoset](#), [Norm1TorusITransitiveGroup](#),
[Norm1TorusIPermutationGroup](#), [TransformationMatPari](#), [TransformationMatPerm](#),
[StablyPermutationCheckHPPari](#), [StablyPermutationMCheckPPari](#),
[StablyPermutationFCheckPPari](#), [StablyPermutationFCheckPFromBasePari](#) in
[FlabbyResolutionFromBase.gap](#) were added as in [RatProbNorm1Tori for GAP 4 ver.2023.09.28](#);

[FlabbyResolutionNorm1TorusJ](#) in [FlabbyResolutionFromBase.gap](#) was added)

Old version 3: [Norm1ToriHNPver.2022.10.17.zip](#)

([AbelianInvariantsGoverH](#) in [HNP.gap](#) was added)

Old version 2: [Norm1ToriHNPver.2020.03.19.zip](#)

([AlwaysHNPholds](#), [KerResH3Z](#) in [HNP](#) were improved;

[ChooseGilterator](#), [MaximalNormalSeries](#), [ConjugacyClassSubgroupsNGHOrbitRep](#),
[ConjugacyClassesSubgroupsNGHOrbitRep](#), [MinConjugacyClassesSubgroups](#),
[IsInvariantUnderAutG](#) in [HNP](#) were added)

Old version 1: [Norm1ToriHNPver.2019.10.04.zip](#)

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URL:

<http://mathweb.sc.niigata-u.ac.jp/~hoshi/Algorithm/Norm1ToriHNP/index.html>

<https://www.math.kyoto-u.ac.jp/~yamasaki/Algorithm/Norm1ToriHNP/index.html>

Description

This code provides algorithms related to computations of total obstruction to the Hasse norm principle.

Installation

Download [Norm1ToriHNP-2024.04.03.zip](#) and unpack it to some folder , e.g. C:
\Users*username*.

Then type "Read("HNP.gap");" on GAP.

Documentation

[FlabbyResolutionFromBase](#) [[.html](#) [.pdf](#)]

[HNP](#) [[.html](#), [.pdf](#)]

[README](#) [[.html](#), [.pdf](#)]

Content

[Norm1ToriHNP-2024.04.03.zip](#)+-[FlabbyResolutionFromBase.gap](#)

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References

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- [HKY22] A. Hoshi, K. Kanai, A. Yamsaki, *Norm one tori and Hasse norm principle*, Math. Comp. **91** (2022) 2431-2458. [AMS](#) Extended version: [arXiv:1910.01469](#).
- [HKY23] A. Hoshi, K. Kanai, A. Yamsaki, *Norm one tori and Hasse norm principle, II: Degree 12 case*, J. Number Theory **244** (2023) 84-110. [ScienceDirect](#) Extended version: [arXiv:2003.08253](#).
- [HKY] A. Hoshi, K. Kanai, A. Yamsaki, *Norm one tori and Hasse norm principle, III: Degree 16 case*, [arXiv:2404.01362](#).
- [HKY2] A. Hoshi, K. Kanai, A. Yamsaki, *Hasse norm principle for M_{11} and J_1 extensions*, [arXiv:2210.09119](#).

Norm1ToriHNP is a free software.

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